

REMARKS

The Examiner is thanked for the Official Action of September 12, 2005. This request for reconsideration is intended to be fully responsive thereto.

CLAIM REJECTIONS – 35 USC§102/103

Claims 11-13 were rejected under 35 USC§102(b) as anticipated by or, in the alternative, under 35 USC103(a) as obvious over Tanaka of record. The Examiner suggested that Tanaka teaches a method of manufacturing an electrode structure comprising an electrode material, binder and solvent onto a current collecting member and directing warm breeze onto the compound mixture to gradually vaporize the solvent and form an electrode film on the current collecting member; Tanaka teaches of using air at 20-350 centigrade; the speed of the air ranges from 0.1 to 100 m/sec and preferably 1 to 30 m/sec (col. 5, ll. 1-10); and the air is controlled at preferable temperature from 40-200 centigrade and a preferable rate of 1-30 m/sec. The Examiner stated that at a temperature of 40-200 centigrade and an additional teaching of drying via low moisture air (i.e., dry air) this range would inherently provide a dry air heat; the mixture contains an electrically conductive material; and thus claimed ranges are held to be taught by Tanaka with sufficient specificity. Alternatively, when a solvent remains in the depolarizing mix for the electrode, a drying step is employed using dry air at a temperature range from 20-350 centigrade and preferably 40-200 centigrade and wind velocity from 0.1-100 m/sec, preferably 1-30 m/sec 0.1 m/sec and 1 m/sec being specific data points which fall within the instant claim air speed range. Then, the Examiner cited *Titanium Metals Corp. of Am. V. Banner*, 778 F.2d 775, 783, 227 USPQ 773, 779 (Fed. Cir. 1985) and claimed that when the difference between a claimed invention and the prior art is the range or value of a particular variable, then a prima facie rejection is properly established when the difference in the range of value is minor.

Claim 14 was rejected under 35 USC§103(a) as being unpatentable over the admitted prior art in view of US 6127065 to Yamamoto. The Examiner claimed that the differences between the admitted prior art in paragraph [0002] and the instant

claims are of the compound mixture comprising active carbon material, and the electrically conducting material being carbon black and of the air flow rate for evaporating the solvent. The Examiner claimed that mixture of the admitted prior art employs both an active material and electrically conducting substance, but does not specify these materials to the extent in claim 14, and the use of carbon active materials in negative electrodes is well known in the art as shown by Yamamoto (co. 4, II. 27-41). Then, the Examiner concluded that the motivation for using carbon as the active material in a negative electrode in a lithium battery is that carbon materials are capable of lithium ion insertion/separation and yield a longer battery cycle life span and it would have been obvious to modify the teachings of the admitted prior art of the instant application by selecting the electrode material to be a carbon material since it would have provided a material capable of intercalating lithium ions and improve the battery life cycle span. The Examiner added carbonaceous negative electrode materials are well within the skill of the ordinary worker in the art as an active electrode material and the selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carrol Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

Regarding the warm breeze, the Examiner brought the admitted prior art and Tanaka to conclude that it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of the admitted prior art of the instant application by selecting any temperature and air speed in the range of Tanaka since it would have provided sufficient means for evaporating the solvent from electrode. The Examiner claimed when the difference between a claimed invention and the prior art is the range or value of a particular variable, then a prima facie rejection is properly established when the difference in the range of value is minor. *Titanium Metals Corp. Id.*

The Applicant respectfully disagrees with the Examiner's opinion.

The Examiner repeatedly cited *Titanium Metal Corp* to argue that Claims 11-14 are obvious because the difference in the value range is minor. The Examiner simply and subjectively concluded this without giving specific reasoning.

As the Applicant has been submitting, the significant and magnificent

advantage of this invention is to manage the specific range of the temperature at 60-150 centigrade and the specific range of dry condition by proving the wind velocity of 0.1-3.0 m/sec. On the other hand, Tanaka offers the temperature of 20-350 (preferably 40-200) centigrade and the velocity of 0.1-100 (preferably 1-30) m/sec. It is true that as the Examiner stated 60-150 centigrade is within 40-200 and 1-3.0 m/sec. is within 1-30. However, the Applicant hereby references TABLE 4 from the original specification to further and more clearly show that specifying the restricted range of the present invention is more than just a minor difference. TABLE 4 shows as follows:

Sample	Dry breezy/air heating		Hot outside air heating		Hot dry air heating	
	Peeling Strength	Impedance (/ohm)	Peeling Strength	Impedance (/ohm)	Peeling Strength	Impedance (/ohm)
1	a	2.5	c	96	-	-
2	a	0.7	b	36	-	-
3	a	0.9	b	8.6	-	-
4	b	0.5	c	1.8	-	-
5	a	0.3	b	1.11	-	-
6	a	0.7	c	1.36	-	-
7	b	2.3	c	6	c	5
8	a	0.5	b	3	b	3

The impedance of the electrode structure obtained by a 1 m/sec. velocity of dry breezing/air heating (the approximate median number of the present invention) is reduced at least 1.9% and up to 52% if compared with the impedance obtained by 15 m/sec velocity of dry breezing/air heating of Tanaka (the approximate median number of Tanaka). In other words, compared to Tanaka, the present invention can reduce the electrode structure's impedance by up to 52%. This is a remarkable result and should not be considered "minor" in any respect.

Furthermore, Tanaka is silent as to the relationship between the Impedance and the temperature with regard to the electrode structure. Tanaka does not even suggest or imply the relationship in that patent. In other words, Tanaka did not have any intention to address the relationship because Tanaka, as well as other cited references, did not have any motivation to do so. For example, regarding the range of Tanaka, i.e., 0.1-100 (preferably 1-30) m/sec., Tanaka clearly admits that the velocity less than 1.0 but more than 0.1 m/sec. is inferior to the range between 1-100. Also, among the numbers between 1 and 100, Tanaka is silent as to the significance of the range between 2 and 3 m/sec.

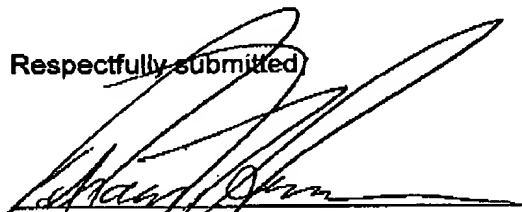
As stated above, the breeze as defined by the present invention, i.e., slow air flow of 1-3 m/sec., provides significant, non-minor impedance reduction of the electrode structure. Further, Tanaka as well as the other cited references did not recognize this significance. The Applicant repeated the experiments numerous times in order to find, establish and confirm this result. Tanaka and the other patents focus are on other points and never show, reveal or suggest the significant advantages of the present invention.

CONCLUSION

Accordingly, it is respectfully submitted that Claims 11-14 define the invention over the cited references and notice to this effect is respectfully solicited. Applicant believes that the claims are now in condition for allowance. No new matter has been added.

Should Examiner believe further discussion regarding the above claimed language would expedite prosecution they are invited to contact the undersigned at the number listed below.

Respectfully submitted,



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